

SUMNER, WASHINGTON,
JANUARY 19th, 1943.

TO THE JOINT BOARD,
INTER COUNTY RIVER IMPROVEMENT COMMISSION,
KING AND PIERCE COUNTIES, WASHINGTON.


GENTLEMEN:

I have the honor to submit for your approval a resume
of the activities of the Inter-County River Improvement for the year 1942.

Upon the death of Mr. Walter, the Chief Engineer, August 29th,
1942, there was no representative for Pierce County on the work. I there-
fore asked Pierce County to name some competent engineer to represent
them and to also serve as a Supervising Observer for me. The Pierce
County Commissioners named Mr. Fred Essig as a temporary assistant.
With him we have followed the line of necessary improvements of weak
sections as set out station by station in our Mid-Year Report.

All work has been carefully supervised and carried on only so
far as labor could be obtained and expenses kept within the budget. Results
are set out under proper headings with all expenses and costs carefully
tabulated.

Very truly yours,


R. H. Thomson,
Inter-County River Improvement.

GENERAL

As it pertains to this project the weather thruout the past year has been favorable to the operation of this project and we have not experienced any major floods that have overtopped or in any appreciable degree destroyed or eroded the control revetment placed during recent years.

Rainfall has been normal and uniformly distributed according to seasons to the extent that it has not retarded the work in hand.

The low summer stage of water has at numerous points thruout the lower river eroded the toe of some of the old revetment to clearly reveal the instability of this revetment unless it be reinforced by a blanket of rock placed in such a position as to cover the gap between the old decayed brush mattress and the concrete revetted slope.

During the early portion of the year from January to late in April it was decided to concentrate activities in the Auburn Section by redistributing rock from several groins that were considered unnecessary and to use this rock to blanket the adjacent river bank, in so doing, the Inter-County demand for rock from the quarry was greatly reduced, and the channel has been thereby widened which lessens the scouring action of the river thruout this section.

EQUIPMENT

It is an acknowledged fact which has been discussed on numerous occasions that with the scarcity of hand labor we are faced with one or the other of two alternatives. During the past eight or more years we have had the advantageous use of C W A and W P A labor which we used in clearing the river channel of accumulated drift.

At present, the employment situation is such that this labor is no longer available, however the river borne drift that is brought down with each rise of water lodging along the banks and on the bars thruout the entire course of the stream, if not removed creates hazards that result in serious stream diversion and bank erosion.

It has been the policy to remove this accumulation of drift completely at least once each season thruout the course of the river within the province of the Inter-County, however with the present labor shortage this is impossible unless it is to be accomplished with the assistance of power equipment, which would use a minimum of hand labor. In the final analysis the situation demands either to rent or purchase a caterpillar tractor which would be most advantageously used during the entire year. A portion of time it would be employed removing drift and the balance of the year it would be used in building and repairing earth levees which would later be revetted with rock. The other alternative is to disregard the constant accumulation of drift and wait the inevitable destruction which will result from the congestion occurring at bottle-neck points and shallow places thruout the river channel.

Established priority rating assigned to this work which is (A10-P-100) does not permit us the purchasing privilege necessary to replace equipment that is wearing out under normal use. It will be necessary to make application to W P B, Washington, D. C. for a higher priority rating which from experience I fear is quite difficult to secure owing to the fact that work of this nature does not come under the class of "strictly war necessity". It is anticipated that within the year the successful operation of this project will be seriously retarded by not being able to obtain the necessary replacements for the equipment we are now using.

QUARRY OPERATION

The Pierce County rock quarry located near the State Soldier's Home south of Orting, has supplied the project with rock for several years. It is without question the most desirable rock quarry yet located, its accessibility, quality of rock and relative cost of operation provides a material vitally necessary for the revetment and bank stabilization on these rivers.

By careful cooperation it has been possible to distribute the rock demand for the year so that both Pierce County and the Inter-County has been able to secure the necessary rock without conflicting in any way upon the demand of the other, this in a marked degree is due largely to the fact that the operation of both organizations is under the same head.

Thruout the year the demand for rock varies somewhat so that by the end of the year there may be a difference in quantity of rock taken by either department in proportion to the funds expended.

The fund balance credit or debit to either department is carried into the next year and adjusted by the quantity of rock taken.

In the future, instead of attempting to conduct the quarry operation so as to constantly carry an actual balance between both organizations in proportion to funds expended in the quarry it would be far better for the quarrying operation to be performed by Pierce County and whatever rock is required by the Inter-County be purchased from Pierce County at a fixed unit price predetermined and agreed upon; which price should include all costs directly or indirectly chargeable to quarry operation. A study will be made of this operation and a report submitted for your consideration at a near future date.

FACTORS AFFECTING THE PRESENT OPERATION OF THE
INTER COUNTY RIVER IMPROVEMENT.

a. MUD MOUNTAIN DAM.

The ultimate contemplated benefit as a flood control factor will not be realized for the duration of the present war, due primarily to the inability to secure the final necessary control mechanism which would be used in regulating the flow of water thru the by-pass tunnels. These control valves have not been installed and in all probability will not be for the duration. The structure as it now exists, permits an outflow of 16,000 c.f.s. instead of 8,000 c.f.s. which was to be the maximum discharge during flood periods, as clearly set forth in the original design and which amount was estimated would not endanger present revetments by overtopping and causing damage as experienced in former floods. Until the control mechanism has been installed we await with great anxiety any extreme high water.

b. PIERCE AND KING COUNTY CONTRACT.

As set forth in our November report, the case between King and Pierce Counties as it pertains to the Inter-County River Improvement contract remains unsettled awaiting final decision of the Court. The deficiency appropriation by King County of \$8,100.00 for the year 1942 has caused a decided curtailment of operation for that year and in addition to this, the failure by King County to budget the necessary funds for 1943 prevents the normal planning of operation for this year, however, Pierce County is making available its budgeted fund for the Inter-County River Improvement which funds are being used to continue the operation pending further developments.

ROCK DISTRIBUTION

Location, quantity and distribution of riprap rock and the strengthening of existing levees is herewith outlined on the following page. As previously mentioned in this report, it had been decided that certain rock groins, previously built in the Auburn Section functioned adversely to the desired control of the river thruout this section; these were removed and the rock used to blanket the adjacent river bank, and in so doing the channel was widened, thus reducing stream velocity and in turn preventing unnecessary scouring action.

ROCK DISTRIBUTION continued

	LOCATION	QUANTITY C.Y.	TYPE	LIN. FT. BANK PROTECTED
<u>AUBURN SECTION</u>				
(1)	R.B. Sta. 692 plus 04 to 696 plus 59	94	Rock Blanket	455
(2)	R.B. Sta. 719 plus 42 to 727 plus 04	4495	Gravel Levee	762
(3)	R.B. Sta. 729 plus 89 to 733 plus 04	1858	" "	315
(4)	R.B. Sta. 719 plus 42 to 735 plus 69	6592	Rock Blanket	1627
(5)	L.B. Sta. 396 plus 49 to 409 plus 94	980	Rock Blanket	1355
(6)	L.B. Sta. 418 plus 69 to 427 plus 44	572	" "	875
(7)	L.B. Sta. 445 plus 39 to 446 plus 04	868	" " & Groin	65
(8)	L.B. Sta. 475 plus 14 to 477 plus 24	428	Blanket & "	210
(9)	L.B. Sta. 418 plus 69 to 425 plus 54	9272	Gravel Dike	685

The gravel levee in Item 2 and 3 totaling 1077 lin. feet was blanketed with 6592 cubic yards of rock which was removed from the original rock groin 1350 feet in length , designated in former reports as "Cleaver Wall Low Dike."

In addition to the rock delivered from the Quarry in Items 6 and 7, 2660 cubic yards of rock was placed as a blanket in these locations from rock groins removed from the left bank at Station 418 plus 69 and Station 446 plus 04.

Stationing referred to is same as indicated in the Mid-Year Report.

	LOCATION	QUANTITY C.Y.	TYPE	LIN. FT. BANK PROTECTED
<u>COUNTY LINE SECTION</u>				
	R.B. Sta. 639 plus 80 to 642 plus 90	576	Rock Blanket	310
<u>DIERINGER SECTION</u>				
	R.B. Sta. 502 plus 10 to 507 plus 80	1120	Rock Blanket	570
	R.B. Sta. 512 plus 65 to 515 plus 35	912	" "	235
	R.B. Sta. 517 plus 90 to 524 plus 20	2276	" "	630
	R.B. Sta. 563 plus 58 to 565 plus 43	740	" "	185
	L.B. Sta. 542 plus 33 to 547 plus 93	1500	" "	560

MURPHY SECTION

L.B. Sta. 254 plus 00	952	Rock Groin	160
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METEOROLOGICAL RECORD FOR THE YEAR 1942.

MONTH	*TEMPERATURE			PRECIPITATION		#RECORDED GAGE OF PUYALLUP AT PUYALLUP	
	MEAN MO.	MAX. DAY	MIN. DAY	MAX. DAY	TOTAL	MAX. DAY SEC. FT.	MEAN MO. SEC. FT.
Jan/	Not available					2920 1/29	2325
Feb.	40.7	54 2/6	24 2/22	0.54 2/4	2.94	3820 2/11	2483
Mar.	44.6	70 3/31	29 3/24	0.71 2/22	3.46	3410 3/10	1942
Apr.	50.6	78 4/19	32 4/23	0.69 4/30	3.58	3540 4/17	2487
May	54.0	79 5/6	35 5/11	0.60 5/25	3.52	6490 5/25-26	3505
June	60.4	96 6/30	41 6/21	0.81 5/6	5.70	9790 6/15-16	5167
July	66.2	98 7/1	48 7/12	1.23 7/16	2.50	6900 7/17	3682
Aug.	66.1	98 8/15	44 8/26	0.15 8/25	0.45	2810 8/7	2183
Sept.	60.2	85 9/23	41 9/21-26	0.32 9/30	0.61	1880 9/5	1360
Oct.	52.8	76 10/17	31 10/28	1.97 10/31	3.79	4230 10/31	
Nov.	42.4	59 11/2	31 11/20	1.63 11/23	7.93	17400 11/24	
Dec.	40.3	54 12/14	27 12/7	0.77 12/9	6.04	7320 12/13	

* Temperatures and precipitation recorded by P.S.P. & L. Co. at Station on White River near Buckley

Gauge record on Puyallup River as recorded by U.S.G.S.

QUARRY BALANCE SHEET
DECEMBER 31, 1942

Inter County		Pierce County	
Labor.....	None	Shovel Operation.....	\$589.60
Pierce County Bureau...	\$3.00	Ind. Ins. & Bureau.....	7.82
Supplies.....	3.29	Quarry Drillers.....	400.82
		Quarry Watchman.....	113.91
		Clerk.....	22.50
		Engineer.....	150.00
		Supervision.....	107.50
		Shovel & Comp. Gas-Oil.....	105.08
		Miscellaneous Supplies.....	16.79
Total Cash Expended....	<u>6.29</u>		\$ <u>1514.02</u>
Equipment Rental.....	150.00	Shovel Rental	\$400.00
Total Expended.....	\$ <u>156.29</u>		\$ <u>1914.02</u>

COST BALANCE

	Previous Months	December	To Date
Inter-County	\$6,925.36	\$ 156.29	\$ 7,081.65
Pierce County	<u>9,943.34</u>	<u>1,914.02</u>	<u>11,857.36</u>
	\$ <u>16,868.70</u>	<u>2,070.31</u>	<u>18,939.01</u>

ROCK TAKEN FROM QUARRY 1942

	Previous Months c.y.	December c.y.	To Date c.y.
Inter-County	9,360	2,016	11,376
Pierce County	<u>17,924</u>	<u>2,836</u>	<u>20,760</u>
	<u>27,284</u>	<u>4,852</u>	<u>32,136</u>
Rock Sold to Highway Department and Fisheries			<u>385</u>
			<u>32,521</u>

\$18,939.01 divided by 32,521 c.y. equals \$0.58236 / c.y. does not include any powder, powder was carried over from 1941

QUARRY OPERATION FOR YEAR 1942

LOADING

Shovel Rental	\$3,127.26	
Shovel Runner and Oiler	4,499.87	
Shovel Gas-Oil	555.96	
Cable	51.16	
Transport Shovel to Quarry	<u>95.80</u>	
Total Loading Costs		\$8,330.05

QUARRYING

Drillers Wages and Insurance	\$4,333.97	
Steel	154.92	
Miscellaneous Supplies	76.58	
Black Powder	10.30	
Compressor Gas-Oil	304.46	
Equipment Rental	1,650.00	
Powder 40% and 60% 3,050 lbs	<u>360.63</u>	
Total Quarrying Costs		\$6,890.86

OTHER QUARRY COSTS

	I C R I	Pierce Co	
Supervision	\$1,050.00	\$2,443.72	\$2,443.72
Auto Expense	19.61		19.61
Engineer		150.00	150.00
Watchman		968.51	968.51
Clerk		315.00	315.00
Miscellaneous Sup.		78.20	78.20
Miscellaneous Gas		<u>108.99</u>	<u>108.99</u>
Total Other Quarrying Costs			\$ 4,084.02
Total Quarry Charges.....			\$19,304.93

BALANCE SHEET ON ROCK TAKEN FROM QUARRY
1 9 4 2

	Charge to I C R I	Charge To Pierce Co.	Credit To I C R I	Credit To Pierce Co.
.....				
Balance in favor Pierce Co. from 1941				\$611.02
I C R I Rock Taken 11,376 x .58236	\$6,624.93			
Pierce County " 20,760 x .58236		\$12,089.79		
Royalty on 11,376 c.y. @ \$0.01	113.76			113.76
Quarry Outlay 1942			7,081.65	11,857.36
	\$ 6,738.69	\$ 12,089.79	\$ 7,081.65	\$ 12,582.14

Inter County Credits	\$7,081.65
Inter-County Charges	<u>6,738.69</u>
	\$ 342.96

Pierce County Credits	\$12,582.14
Pierce County Charges	<u>12,089.79</u>
	\$ 492.35

Pierce County Credits	\$ 492.35
Inter-County Credits	<u>342.96</u>

Credit due Pierce County	\$ 149.39
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EQUIPMENT RENTAL BALANCE SHEET

Pierce County Equipment rented by Inter-County for

January, February, March, April (See reports for that period) \$2921.69

Pierce County mechanic labor charge against Inter County Equip. 19.75

Total owing Pierce County by Inter-County..... \$2941.44

CREDITS BY INTER COUNTY TO PIERCE COUNTY

Credit as April Report	\$467.15	
" " May "	323.84	
" " July "	171.75	962.74
Balance on rental August 31		\$ 1978.70

Rock quarried by Inter-County and sold for which Puyallup River Improvement received credit

State Fisheries	23 c.y.	
State Highway	350 "	
City of Tacoma	2788 "	
	<u>3161 " @ .2864 (Quarrying Costs)</u>	909.23
		\$1069.47

Nov. & Dec. Credits		
City of Tacoma	1500 c.y. @ .2864	431.31
Balance due on rental to Pierce County.....		\$ 638.16

EQUIPMENT PURCHASED AND BORROWED
BY KING AND PIERCE COUNTIES.
ROAD DISTRICTS.

KING COUNTY ROAD DISTRICT NO. 1

1940 by Park Supervisor Hartzell- Tom Smith Commissioner

One 92 H.P. Buda Deisel Engine and Hoist as is	\$1800.00
August 1941 Credit Wash. Machinery Check for Hoist	<u>750.00</u>
Balance due from Road District No. 1	\$1050.00

KING COUNTY ROAD DISTRICT NO. 2

Mar. 2, 1938 By Jack Taylor Commissioner, Melt Robbins signed

One Dandie Mixer No. 10487 Size 107-S	\$ 100.00
Balance due from King County.....	<u>\$1150.00</u>

KING COUNTY BORROWED ROAD DISTRICT NO. 2

April 23, 1942 Signed by O O Wilson

One pile Driver Hammer (1500 lbs.)
Channel Iron 6"
Yoke

PIERCE COUNTY ROAD DISTRICT NO. 2

One Concrete Mixer (Dandie Koehring)	\$100.00
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PIERCE COUNTY ROAD DISTRICT NO. 3

1 tank Trailer	100.00	
1 3/4 yd. Scraper	50.00	
1 1 1/2 yd. Crescent	75.00	
1 1 1/2 yd Bagley Scraper	75.00	
1 1 1/4 yd " "	<u>70.00</u>	<u>370.00</u>

Due from Pierce County.....	\$ 470.00
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FINANCIAL STATEMENT
INTER COUNTY RIVER IMPROVEMENT
DECEMBER 31st, 1942.

ITEM	EXPENDITURES PREVIOUS MOS.	EXPENDITURES DECEMBER	EXPENDITURES TO DATE
General Control	\$6,276.31	\$1,278.20	\$7,554.51
Equipment Maintenance & Operation	1,639.74	74.05	1,713.79
Watchman	452.45	30.00	482.45
Place Rock	7,184.15	708.19	7,892.34
Quarry Operation	4,375.36	6.29	4,381.65
Haul Rock	13,515.70	2,894.40	16,410.10
Stock Acct.- Gas-Oil	268.19	-25.44	242.75
	<u>33,711.90</u>	<u>4,965.69</u>	<u>38,677.59</u>
	<u>Pierce County</u>	<u>King County</u>	<u>Total</u>
Expenditures Prev. Months	\$13,511.69	\$20,200.21	\$33,711.90
Expenditures in December	3,286.79	1,678.90	4,965.69
Expenditures for 1942.....	\$ 16,798.48	\$ 21,879.11	\$38,677.59
Budget Levy	20,500.00	30,000.00	50,500.00
Short	<u>20,500.00</u>	<u>8,100.00</u>	<u>8,100.00</u>
		<u>21,900.00</u>	<u>42,400.00</u>
Expenditures to Dec. 31	<u>16,798.48</u>	<u>21,879.11</u>	<u>38,677.59</u>
Balance of 1942 Tax Levy	\$ 3,701.52	\$ 20.89	\$ 3,722.41

RESPECTFULLY SUBMITTED,

R. H. Thomson, Consulting Engineer
Inter-County River Improvement